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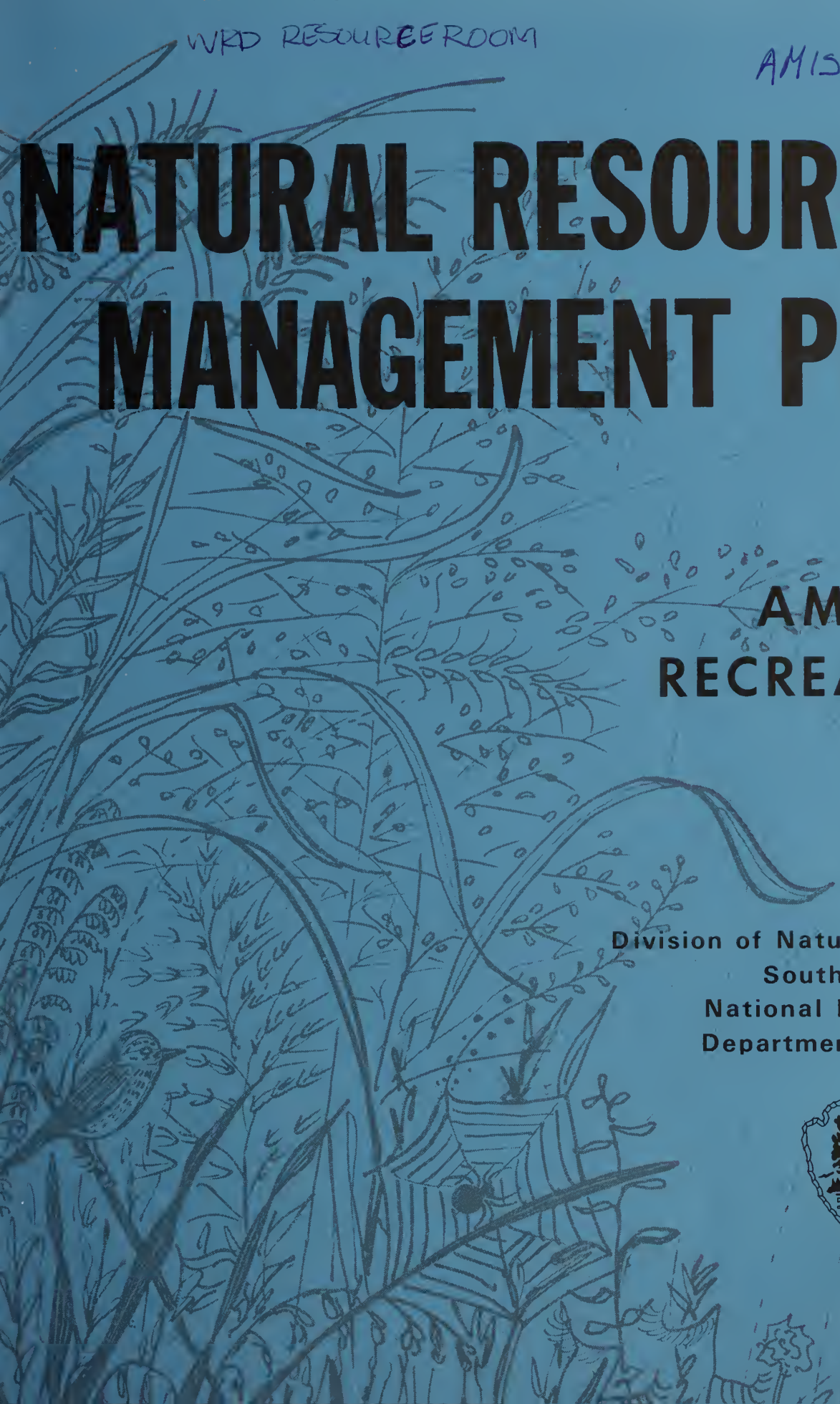
NATURAL RESOURCES MANAGEMENT PLAN

AMISTAD RECREATION AREA



Division of Natural Sciences
Southwest Region
National Park Service
Department of Interior

NATURAL RESOURCES MANAGEMENT PLAN

FOR

AMISTAD RECREATION AREA

December
1974

Prepared by: Amistad National Recreation Area Staff and Southwest Region Office of Natural Science

Reviewed by: Southwest Region Offices of History, Archeology, Planning, Maintenance, Interpretation, and Resources Management

Approved for Implementation by: _____
Regional Director, Southwest Region

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Fig. 1. NUMEROUS BAYS AND COVES OF LAKE AMISTAD ENTICE SIGHTSEERS AND FISHERMEN. Lake Amistad Photo.

NATURAL RESOURCES MANAGEMENT PLAN

A Natural Resources Management Plan is a strategic planning document and a key factor in good management and preservation of the resource.

This plan is a set of project statements which include proposed action for implementation as well as 5-year programming sheets for maintenance and research actions. Other sections of the plan serve as an introduction and a set of guidelines. Project statements are determined on the basis of approved Management Objectives and Land Classification. Management Constraints and Completed Research serve as guidelines for projects. The Plan serves the Superintendent in two ways: (1) as a manual for maintenance activities that will preserve the environment or achieve an environmental status quo to comply with Park Service Standards, and (2) a set of research projects and priorities that are designed to obtain additional information for management and interpretation.

TABLE OF CONTENTS

I. MANAGEMENT OBJECTIVES

II. LAND CLASSIFICATION

III. ANNOTATED MANAGEMENT CONSTRAINTS

IV. NATURAL RESOURCE MANAGEMENT PROGRAM

V. PROGRAMMING SHEETS AND RESEARCH PRIORITIES

MAINTENANCE

RESEARCH

VI. OVERVIEW

VII. APPENDICES

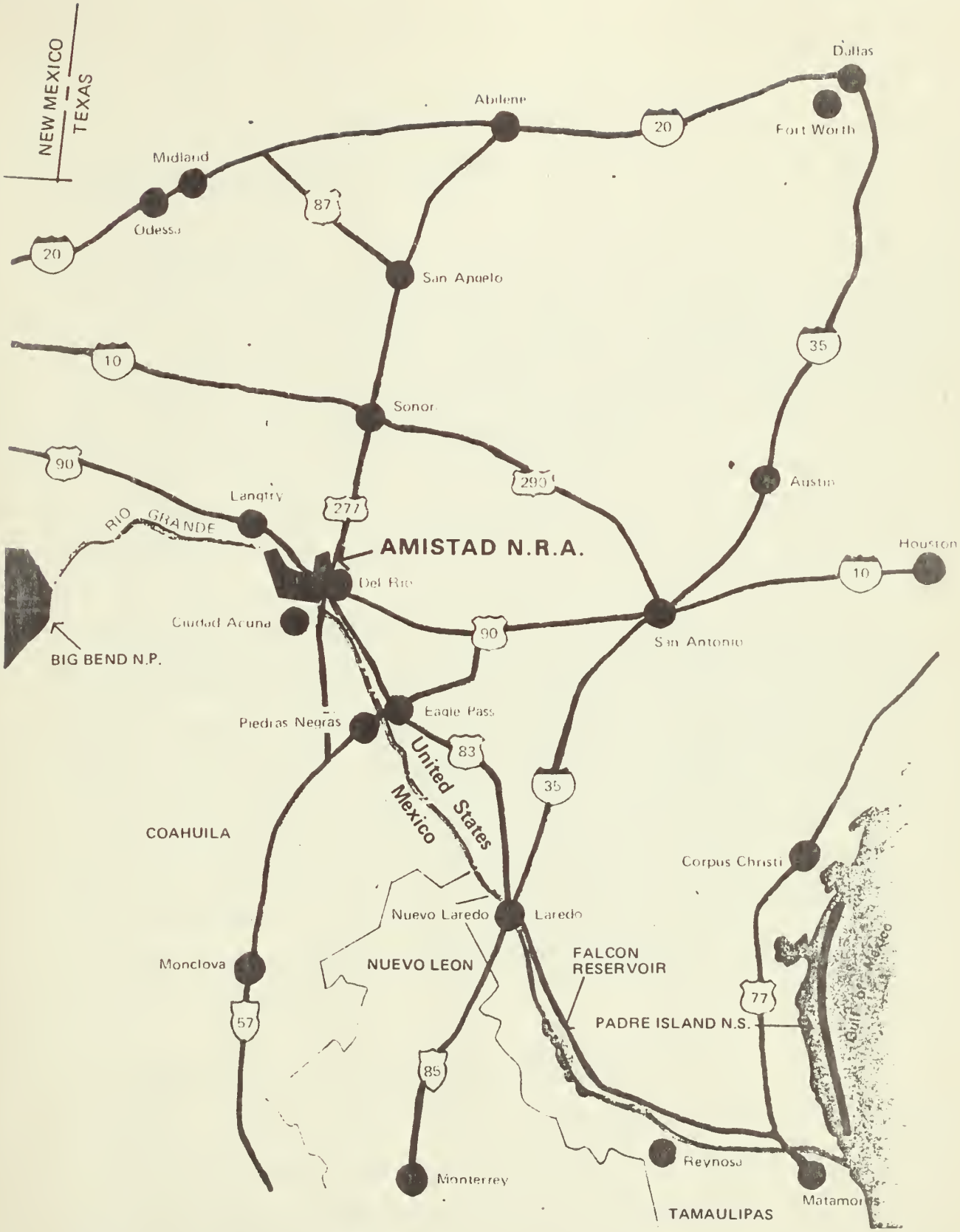
A. Constraint Documents

B. Completed Research

C. Collections and Locations

D. Specific Management Plans

E. Annual Review, Changes and Dates



Regional Map

Amistad National Recreation Area

0 20 40
Miles

N

621 | 20000-B
NOV 73 | DSC

I. MANAGEMENT OBJECTIVES

STATEMENT FOR MANAGEMENT AND PLANNING

A. Purpose of Park

The purpose of the proposed Amistad National Recreation Area is to provide for the fullest public outdoor recreational use and enjoyment of the area's land and water resources, and to conserve its scenic, scientific, historic, and other values contributing to this experience.

B. Management Category

Recreational

C. Management Objectives

To Preserve the Resource: Nine access points will insure directed area use and tend to prevent abuse of the shore line by the spreading effect of the visitor impact. The boundary, except at development sites, is a contour (1144.3 feet or 348.8 meters). The lake level fluctuates thus preventing a stable amount of acreage between the water and the very crooked boundary. In the true sense of the word, there is no wilderness. However, certain principles of wilderness management will apply to many miles of shore line.

In cooperation with the State, public hunting will be a part of the management program. Areas selected for hunting will be based on wildlife populations, safety to the hunter, and must be compatible with other recreational uses. At conservation pool level the boundary is more than 500 miles (805 km) long and in many locations is a sheer canyon wall. The

boundary length will be reduced some when legislation has passed Congress permitting the boundary in the canyon section to be established by tangents. The primary purpose of this management concept is to provide protection for the archeological sites and improve the environmental features by preventing private construction on the edge of the canyon walls.

Physical developments will be restricted to the designated visitor use sites. Each structure will be carefully designed as to purpose and will conform with the Southwest environment. Coloring and landscaping must be within a desert theme.

To Serve the Visitor: Amistad will be available for public use 12 months of the year. Nine access points are planned involving ramps, marinas, camping, and picnicking. Where the need exists, or develops, motels can be considered. Through cooperative efforts of private individuals the circulation roads can be improved in at least one development.

Seven primitive day use areas will be developed to serve the need of those visitors who are seeking recreational opportunities other than boating. These areas will be developed in the vicinity of the lower Devils River and will allow for bank fishing, sightseeing, picnicking, and solitude along the lake shore.

Concessions will be an important function at each of the access points. A special effort will be made to provide services for the public in the upper portions of the reservoir. At the present, access points are on the Devils River arm only. A point of entry on the Pecos River would

insure a more even distribution of visitor use. Land purchase or donation is required to accomplish this portion of the development program.

By treaty, the reservoir surface is to be "free and common to both countries, subject to police regulation of each country in its territory." The boater is subject to customs and immigration laws that relate to the country in which he docks. The waters in the portion of the reservoir in Mexico offer much recreational potential.

An interpretive prospectus is in the process of being prepared. The team members made individual contributions and we are waiting for the final statement. It seems certain that the prospectus will dwell on Amistad's natural and human stories in the context of enriching the recreational experiences. Within this framework, primary emphasis will be placed on archeology with secondary themes in geology, ecology, and history. This can be combined with a story on the construction period and its influence on international cooperation that resulted in water conservation and its use.

One major visitor contact point will serve the interpretative needs. Visitor contact points will be established at each access. Programs at the archeological sites will provide special messages for the visitor on the significance of the site as well as the value and importance of protection.

To Administer the Area: By 1980, headquarters should be located at Diablo East. In a manner of speaking, Diablo East will become the nerve center for administration and operations. Amistad logically falls into three districts--Diablo East, Rough Canyon, and Pecos Canyon. Diablo East will

serve a large water area and the primary visitor facilities will be required at this location.

There will be no boat launching fee, and all entrance stations will be on a side road leading to campgrounds where a fee may be collected.

Amistad Reservoir is relatively free of industrial and domestic pollution. Every effort will continue to be exerted to prevent impurities of any type from entering the reservoir. The U.S. Public Health Service and the State Health Department help with this phase of the program.

Insect control, wildfires, mining and exploration for oil has a limited place in the management of Amistad. The greatest abuse of the area adjacent to the lake in the past has been over grazing. The sparse desert vegetation has a very limited carrying capacity and recovery is slow.

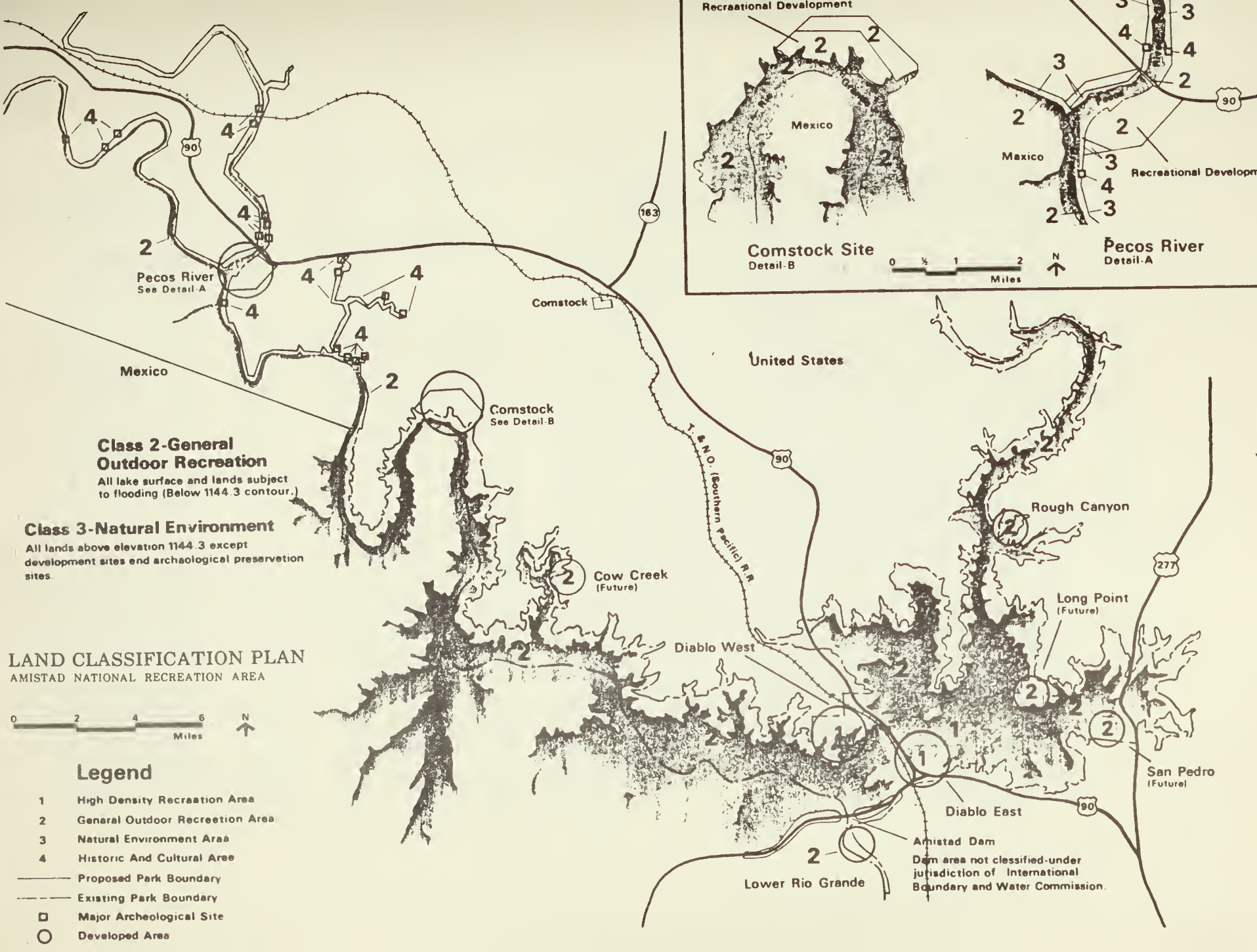
There are no inholdings and acquisition of an additional 5100 acres depends on legislation. These acres will provide access at three sites and, as mentioned previously, will afford protection back a short distance from the canyon rims.

A strong program in water safety operates to protect the visitor. This program is administered in cooperation with the U.S. Coast Guard, the Coast Guard Auxillary and the Texas Parks and Wildlife Department.

The architectural theme will be guided by the special functionalism of structures needed for water-based recreation. The cooperative spirit of the two nations bringing about this project should be in evidence. In

all buildings, respect must be given to the need for depicting the desert in work and play. Structures should reflect brightness of the desert with cool, refreshing and informative views from within.

II. LAND CLASSIFICATION


Recraational Devalopment
Mexico
Comstock Site
Detail-B
0 ½ 1 2
Miles
N
Maxico
Recreational Developm
Pecos River
Detail-A
Pecos River
See Detail-A
Comstock
Mexico
Comstock
See Detail-B
United States
T. & N.O. (Southern Pacific) R.R.
Rough Canyon
Cow Creek
(Future)
Long Point
(Future)
Diablo West
San Pedro
(Future)
Diablo East
Amistad Dam
Dam area not classified under jurisdiction of International Boundary and Water Commission.
Lower Rio Grande
Class 2-General Outdoor Recreation
All lake surface and lands subject to flooding (Below 1144.3 contour.)
Class 3-Natural Environment
All lands above elevation 1144.3 except development sites and archaeological preservation sites.
LAND CLASSIFICATION PLAN
AMISTAD NATIONAL RECREATION AREA
0 2 4 6
Miles
N
Legend
1 High Density Recreation Area
2 General Outdoor Recreation Area
3 Natural Environment Area
4 Historic And Cultural Area
Proposed Park Boundary
Existing Park Boundary
Major Archeological Site
Developed Area

III. ANNOTATED MANAGEMENT CONSTRAINTS

1. The Service has authority to administer lands and surface of waters in the project area on the U.S. side by virtue of MEMORANDUM OF AGREEMENT between the U.S. Section, International Boundary and Water Commission and the Service, made in 1965. The Service does not control the waters, but keeps the Section informed as to its needs. Both parties must concur on all new developments. Specific responsibilities of the Service include: provision of all recreational facilities; contracting for visitor services; protection of clean water, historical and archeological remains, and the safety of visitors. The interpretive program is to be coordinated with the Section and the State of Texas. Specific responsibilities of the Section include: engineering the Dam and Reservoir and regulating visitation thereof. The Section is to work with the Service on access to these facilities and on the coordination of engineering progress with the recreational development.

2. Reference is made in the above document to the original basis for the area's establishment. A Water Treaty with Mexico in 1944 provided for Amistad Dam and Reservoir to be jointly constructed, operated, and maintained. The use of the U.S. waters was to be controlled by the State of Texas, and the Mexican waters by Mexico. The U.S. Priorities established at that time were: flood control, water conservation power, recreation, and fish and wildlife conservation, in that order.

3. A Memorandum of Understanding between the Texas Parks and Wildlife Department and the Service is concerned with wildlife resources in national recreation areas. The emphasis is to benefit wildlife as much as the recreation priority will allow. No wildlife control involving killing is allowed without review by either party. The Service is to help Texas with wildlife habitat improvement and other wildlife needs as funds and personnel will allow. Texas may build non-conflicting structures for wildlife management, but may not introduce species until a joint investigation and effects are known.

4. Mineral rights belong to large corporations, but so far all exploratory drilling has had negative results and there are no plans to renew exploration at this time.

5. Since the Reservoir waters are considered navigable, the U.S. Coast Guard has the primary responsibility to maintain aids to navigation. A Joint Aids to Navigation Agreement between the 8th Coast Guard District and the Service, delegates this maintenance responsibility to the Service, using Coast Guard standards, forms, and technical advice, with joint field inspections to work on problems. The Coast Guard contributes funds on new aids only; the Service pays the maintenance.

6. The Department of the Air Force, specifically Laughlin AFB, Texas, has a Revocable Use Permit for the use of approximately 12 acres for their own recreational purposes at no charge. They must comply with the terms and rules of the Service and of the Memorandum, and must keep all water, beach, and dock areas accessible to the general public without charge. The Service retains right-of-access to administer the area, except when it would interfere with the Permittee's use.

7. Other Revocable Use Permits include: 16 grazing permits, 2 utility service permits (phone and electricity), and 1 road construction permit (Amistad Land Company).

8. A Memorandum of Agreement between the Service and the U.S. Section, International Boundary and Water Commission, provides for joint use of a sewage treatment facility built by the latter party. It was too big for their needs alone and is in the best place for one of the Service's recreational facilities. The Service assumes responsibility for operation and maintenance, and is obligated to enlarge it whenever necessary.

9. A Memorandum of Agreement between the Service and the Department of the Air Force provides for joint use of the same sewage treatment facilities mentioned in the Agreement above.

10. An agreement between the State of Texas and the Service provides for the use by the Service of a State highway system bridge to carry a sewer pipe.

IV. NATURAL RESOURCE MANAGEMENT PROGRAM

Actions included in the project discussions will be divided into four types and designated in each action statement. The four types of actions are:

I. Those Actions Whose Implementation Will Have A Significant and Measurable Effect on the Environment or Are Highly Controversial

II. Those Actions Which Will continue Existing Maintenance

III. Those Actions Which Will Initiate New Maintenance

IV. Those Actions Which Entail Research

NATURAL RESOURCE MANAGEMENT PROGRAM

Current Natural Science RSP-WRP Research Program

Number	Project Title	Status
RSP	None	
WRP	None	

1. Project: Complete Natural Resource Basic Inventory

An inventory of natural resources in administered areas is fundamental to planning for wise resource management. While much information has been assembled in this area, the inventory is not yet complete. These data must be obtained to comply with Natural Science Activity Standards.

Action (Research)

Initiate research projects to complete the area's natural resource inventory, and prepare an area ecosystem map. Begin map with data presently available and add natural science data as they become available.

Research

Several studies are necessary to provide a basic natural resources inventory. They include:

A. Inventory all vascular plants and all significant nonvascular plants denoting those species that are considered rare and/or endangered, of unusual size, or of visitor and scientific interest.

B. Inventory all of the vertebrates, e.g., fish, amphibians, reptiles, birds, and mammals; and all invertebrates that are considered rare and/or endangered or of high visitor or scientific interest.

C. Prepare a list of known fungi and bacteria in the recreation area.

D. Inventory all significant geological features and processes, e.g., caves, fossils, and rock systems.

E. Inventory soils and prepare distribution map of major soils found within the area. This study should coincide with Project No. 2, and could best be accomplished by cooperative agreement with the Soil Conservation Service.

F. Inventory all of the hydrological features, e.g., streambeds, groundwater, and other water resources.

Fig. 2. EROSION OF LIMESTONE SUBSTRATA AT AMISTAD REVEALS A NATURAL RESOURCE OF VISITOR INTEREST: FOSSILS. Lake Amistad Photo.

2. Project: Soil Structure

No soil analysis has been done within the recreation area. The lack of this basic data may limit planning and decision making. A soil study must be made to comply with Natural Science Studies Activity Standards.

Action (Research)

Initiate a soils study.

Research

A soils study should include an analysis of the chemical composition, erosion potential, and related geological features, and be coordinated with Studies 1D, 1E, and 1F. A soils map should be prepared to illustrate the various soil types and areas that may offer an unstable building base.

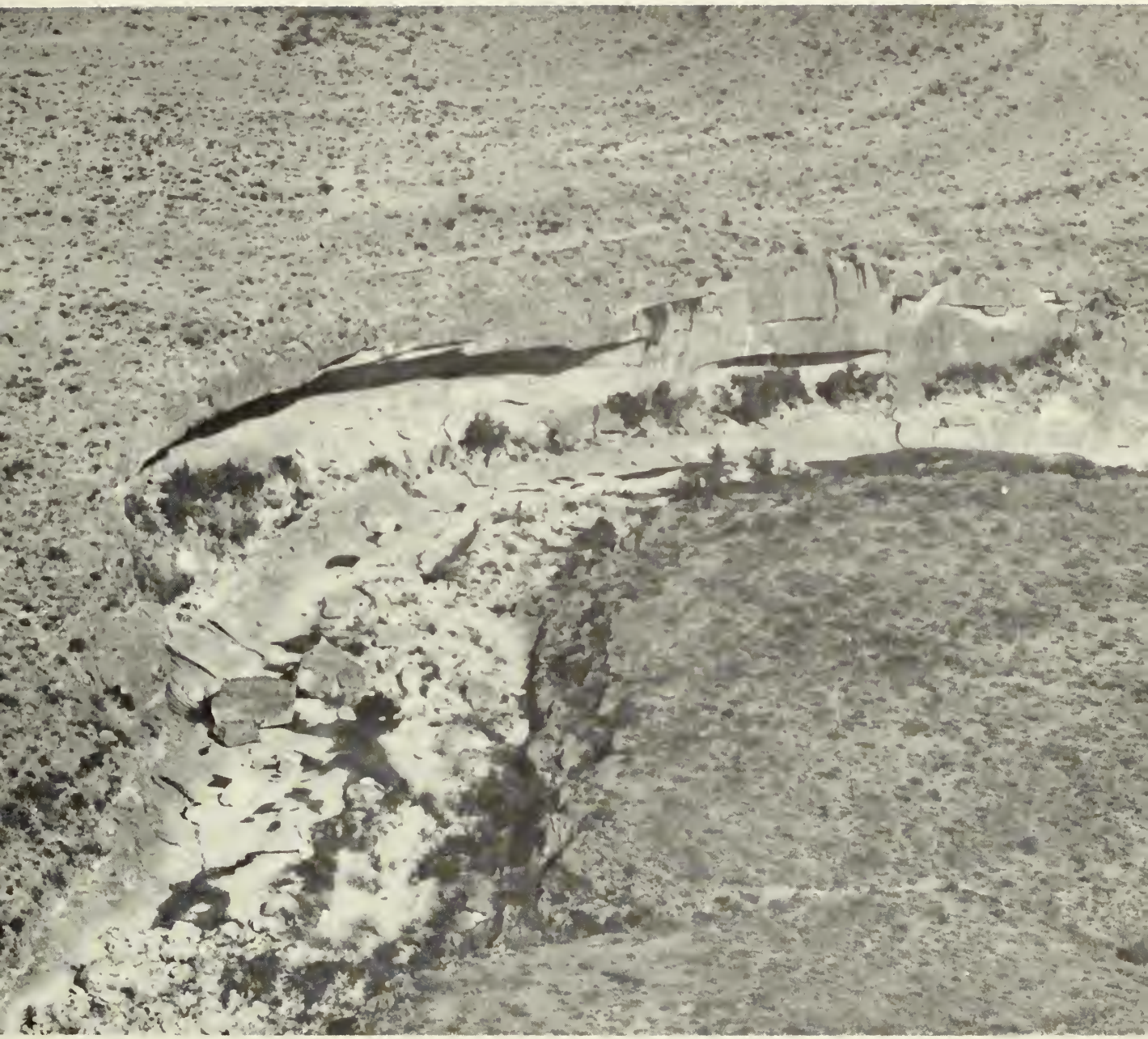


Fig. 3. ROCK OVERHANGS, A COMMON EROSION FEATURE IN THE VICINITY, PROVIDED EARLY INDIANS WITH SHELTER AND BUFFALO JUMPS.
NPS Photo - Fred Mang.

3. Project: Water Resource Analysis

A thorough analysis of the water resources of the area is necessary prior to sound management and decision making and to comply with requirements of the basic natural resource needs and for a Basic Ecosystem Survey, NEPA-1969 and Water Quality Acts.

Action (Research)

Initiate research and continue to monitor water resources at strategic localities. Define the intended use of each watershed so water quality standards for each stream can be determined and the importance of water in a dry land as an important interpretive theme can be utilized.

Research

A water resource study should analyze at least three basic questions:

1. What are the major sources of fresh water, including potability;
2. What are the functions of fresh water in the ecosystem (runoff amount, use by and importance to basic faunal systems, etc.); and
3. What are the threats from potential water deficiencies, pollution of water, etc.? This study could be coordinated with Project 1F.

4. Project: Basic Climatological Data

Basic natural resources data are needed for formulation of sound management planning and decisions, to fulfill interpretive needs, and to comply with Natural Science Studies Activity Standards.

Action (Continue Maintenance and Research)

Initiate research to develop long-term chronology of climate and continue to maintain climatological records within the recreation area.

Research

Basic climatological data for Amistad Recreation Area should include temperature and precipitation patterns, seasonal variations, and short- and long-term trends and cycles. Considerable data have already been recorded from the region and should be obtained and interpreted for use in this study. This research is a prerequisite to Project No. 1, Ecosystem Analysis.

5. Project: Vegetative Cover and Effects of Grazing

Amistad Recreation Area presently contains 2,424 (981 ha.) acres of land above the 1,144.3 (349 meters) contour (top of the flood pool). If legislated, 5,100 additional acres (2,063 ha.) above this contour will be added to the area. These lands have been or will be acquired from large ranch holdings and are subject to grazing by privately owned livestock. The land already is overgrazed. Continued grazing will cause further deterioration of the vegetative cover. Unless these lands are protected, the only remaining portions of the former natural scene in the recreation area will disappear.

Action (Continue Maintenance, New Maintenance, and Research)

Maintenance

Continue to collect grazing fees for use of unfenced lands. As the lands are developed for public use, protective fencing will be constructed along the area boundary above the 1,143.3 contour. As soon as practical, eliminate grazing from the fenced areas and encourage the restoration of native vegetation.

Research

This study should determine composition of the natural vegetation within the recreation area. It should also determine appropriate vegetative productivity, stand composition, succession, biomass, water and nutrient needs, and other ecological parameters; establish benchmarks for a monitoring system that would provide a warning system for future vegetative changes.

Fig. 4. DRAMATIC EFFECTS OF OVERGRAZING ON RANCHLAND (right of fence) EXTEND DOWN TO 1144.3 FOOT CONTOUR LEVEL AND LAKE SHORE.
Lake Amistad Photo.

Fig. 5. SUBDIVISION HOMES COME CLOSE TO LAKE EDGE HERE AT BOX CANYON ESTATES (FOREGROUND) AND AMISTAD ACRES (BACKGROUND).
Lake Amistad Photo.

6. Project: Repair Construction Scars

The climate, vegetation, and soil characteristics of the Recreation Area, along with the underlying limestone formation, present a landform that is highly vulnerable to permanent scarring and erosion. Construction activities, unless carefully controlled, contribute to this scarring.

Action (New Maintenance)

Specification for any construction shall require the removal of all rubble resulting from activities, replacement of the soil mantle that is lost, and reseeding of all construction sites with native vegetation that is consistent with the surrounding vegetation.

Research

None required.

Fig. 6. LAND HERE IS VULNERABLE TO PERMANENT SCARRING; OLD HIGHWAY 90 MAY DIVE UNDER THE RISING SURFACE OF THE PECOS FOR A LONG TIME.
NPS Photo - Fred Mang.

7. Project: Sustainment of the Fish Population

Since flood control and irrigation are the prime uses of the Amistad Reservoir, it is subject to extreme fluctuations. In the early spring when most fish are spawning, water is released to be used downstream. Following a dry winter, spawning beds may be exposed, resulting in a limited hatch. While non-game fish remain during the season in sufficient numbers to reproduce, heavy fishing pressure of game fish is suspected of posing a hazard to their population.

Action (Continue Maintenance, New Maintenance and Research)

Continue the agreement with the Texas Parks and Wildlife Department to stock the lake, take creel censuses to determine sizes, species, and numbers of fish removed from the lake. Continue to make observations on the effect the lowering of the lake level has on the fish populations. Initiate discussion with the Parks and Wildlife Department to undertake a research project, which might be jointly funded.

Research

Determine the tolerance of fluctuating water levels on spawning fish and other factors of fish tolerances, e.g., temperature changes, light changes, turbidity, etc.

Fig. 7. FLUCTUATING WATER LINE DEPENDS ON WATERSHED FLOW, IRRIGATION NEEDS, FLOOD CONTROL ACTIVITIES, AND (EVENTUALLY) ELECTRICAL POWER GENERATION. NPS Photo - Fred Mang.

8. Project: Water Pollution

A number of pollutants enter Amistad Lake in varying degrees. Some of these pose potential hazards to fish and wildlife or human health. Three marine fuel dispensing systems serve the public at present. Two or three more systems will be installed in the next five years. Fractures in the limestone which underlies the area make water pollution a possibility should a fuel tank rupture. Approval has been given for two types of installations: one above ground with retaining dikes around the tanks, and one with buried tanks. Rupturing of tanks in either case could cause serious lake pollution. Also, a large number of watercraft used on the lake have internal sanitary systems. These systems must be sealed but may be a potential source of pollution.

Action (Continue Maintenance, New Maintenance and Research)

Continue to search for a better fuel system installation that will reduce or eliminate the possibility of lake contamination. Make sure that the concession is impressed with the importance of lake cleanliness and gives primary consideration to suitable fuel systems and non-polluting activities.

Temporary floating sewage disposal barges have been constructed at Diablo East. Permanent pump-out stations will be installed at the time utility systems are constructed at partially developed sites, and at all future developments. Until such construction takes place, temporary floating sewage disposal barges will be acquired or constructed for installation at developed sites and at strategic locations on the lake, some of which are 75 miles (120 km) from existing facilities.

Incorporate fish cleaning stations into new construction projects. Initiate research to establish benchmarks and monitor local areas for water quality.

Research

This study should examine localized areas of potential pollution. Benchmarks need to be installed for long-range water quality analysis and control. Some investigation into the permeability of underlying limestone where fuel storage tanks occur may also be necessary.

Fig. 8. MARINAS SUCH AS THIS ONE UNDER CONSTRUCTION AT DIABLO EAST ARE POTENTIAL POLLUTION SOURCES FROM MARINE FUEL DISPENSING SYSTEMS. Lake Amistad Photo.

9. Project: Suburban Encroachment

Since the formation of the lake, what was once grazing land has become vacation and homesite property. The Recreation Area boundary is the maximum high water mark. Developers have subdivided, and the choice property is that which abuts the area boundary. A few homes have been constructed with one wall almost resting on the boundary line. These subdivisions have been created with no thought to the pollution problems they may generate. The problem of greatest concern is pollution of the lake due to inadequate sewage facilities. Each landowner is furnishing his own sanitation facility, usually a septic tank. The rock formation is such that filtration is marginal. As more homes are constructed, with septic-type facilities, there is a possibility that domestic wastes will receive no filtration at all before reaching the lake.

Action (Continue Maintenance)

The lands adjacent to the lake have been zoned for controlled development. Park management personnel will continue to meet with state and county officials to encourage the enforcement of zoning regulations.

Research

None required, but this project is related to Project #7 that entails research.

10. Project: Visitor Use Analysis

Continuing and increasing visitor use of Amistad National Recreation Area eventually will lead to a time that visitor enjoyment and safety will be seriously impaired unless use is limited.

Action (Research)

Initiate research that will lead to better management practices. At a later revision of the Resource Management Plan, maintenance activities will be established based upon the research required at this time.

Research

This study should provide data on the environmental quality of the lake and shoreline managed by the Service, develop benchmarks that can be utilized for long-term monitoring of the environments, and produce alternatives for management of the lake and shoreline.

Fig. 9. BOAT RAMP AT AMISTAD SHOWS HEAVY VISITOR USE.
Lake Amistad Photo.

11. Project: Ecosystem Analysis

The lack of complete analysis of the park ecosystem may limit planning and decision making. This study must be made to comply with Natural Science Studies Activity Standards.

Action (Research)

Initiate research.

Research

This all-inclusive study involves all phases of the area's natural resources and, therefore, is a final step in a comprehensive analysis. An ecosystem analysis involves the measurement of energy input and flow-through in an ecosystem, including the nutrient and mineral cycles of the ecosystem.

Fig. 10. THREE BIOLOGICAL PROVINCES OVERLAP AT AMISTAD. HERE, MESQUITE AND PRICKLY PEAR DOMINATE. DARK CAVE AREA IN CENTER IS BUZZARD'S NEST. Lake Amistad Photo.

Fig. 11. RIVER CANE, WILLOW, AND TAMARISK, AN EXOTIC PLANT, OCCUPY RIPARIAN NICHES ALONG THE LAKE EDGE, CANYON BOTTOMS, AND CLIFF TERRACES. Lake Amistad Photo.

V. PROGRAMMING SHEETS AND RESEARCH PRIORITIES

Includes

Maintenance

Research

RESEARCH
ACTIVITIES AND 5-YEAR PROGRAMMING SHEET

Pkg. No.	Area Priority	RMP Ref. No.	Project Title	75 Year 1 NPS M.Y.	Cost/ $1000	Year 2 NPS M.Y.	Cost/ $1000	Year 3 NPS M.Y.	Cost/ $1000	Year 4 NPS M.Y.	Cost/ $1000	Year 5 NPS M.Y.	Cost/ $1000	Date Submitted 10-237 10-238
	1	N1B	Inventory of Vertebrates		1.5									
	2	N10	Visitor Use Analysis				10							
	3	N3	Water Resource Analysis						5					
	4	N8	Water Pollution						4					
	5	N1E	Inventory of Soils								5			
	6	N2	Soil Structure								6			
	7	N1D	Inventory of Significant Geological Features										5	
	8	N1A	Inventory of Plants										2	
	9	N5	Vegetative Cover and Effects of Grazing											
	10	N1F	Inventory of Hydrologic Features											
	11	N11	Ecosystem Analysis											

MAINTENANCE
ACTIVITIES AND 5-YEAR PROGRAMMING SHEET

Pkg. No.	Area Priority	RMP Ref. No.	Project Title	Year 1 NPS M.Y.	Year 1 Cost/ $1000	Year 2 NPS M.Y.	Year 2 Cost/ $1000	Year 3 NPS M.Y.	Year 3 Cost/ $1000	Year 4 NPS M.Y.	Year 4 Cost/ $1000	Year 5 NPS M.Y.	Year 5 Cost/ $1000	Date Submitted 10-237 10-238
		N4	Basic Climatologic Data	.01	.1	.01	.1	.01	.1	.01	.1	.01	.1	
		N5	Vegetative Cover and Effects of Grazing	.05	1	.05	1	.05	2.7	.05	2.7	.05	2.7	
		N6	Construction Scars			.05	10	.05	10			.05	15	
		N7	Sustainment of Fish Populations	.02	.5	.02	.5	.02	.5	.02	.5	.02	.6	
		N8	Water Pollution	.05	2	.05	2	.05	2	.05	2	.05	2	
		N9	Suburban Encroachment	.01	.5	.01	.5	.01	.5	.01	.5	.01	.5	

VI. OVERVIEW

The following is a review of all actions proposed within the Amistad National Recreation Area Natural Resources Management Plan, and outlined within the four categories described within the Management Plan.

I. THOSE ACTIONS WHOSE IMPLEMENTATION WILL HAVE A SIGNIFICANT AND MEASURABLE EFFECT ON THE ENVIRONMENT

No such actions are planned. Each project included in the Resources Management Program was considered on its own merit, and in every case, those actions planned do not have a significant and measurable effect on the environment. All of the actions fall into categories II, III, or IV.

II. THOSE ACTIONS WHICH WILL CONTINUE EXISTING MAINTENANCE

1. Natural Science Project # 4 - BASIC CLIMATOLOGICAL DATA: Basic natural science data of this type are necessary for formulation of sound management planning and decisions and to fulfill interpretive needs. Basic climatological data-gathering will continue.

2. Natural Science Project # 5 - VEGETATIVE COVER AND EFFECTS OF GRAZING: The park staff will continue to collect grazing fees for stock using unfenced lands within the park.

3. Natural Science Project # 7 - SUSTAINMENT OF THE FISH POPULATION: Extreme flutuations of Amistad Reservoir due to flood control and irrigation activities, as well as heavy fishing pressure on game fishes, may pose a hazard to the fish population. The park will continue to work with the Texas Parks and Wildlife Department to census and stock fish, as well as to continue observations on populations and unusual situations.

4. Natural Science Project # 8 - WATER POLLUTION: There is a high water pollution potential in Amistad Lake due to the great amount of human activities, such as fuel dispensing and storage. The park will continue to monitor these hazards and to search for a better fuel system installation.

5. Natural Science Project # 9 - SUBURBAN ENCROACHMENT: The lands adjacent to the lake have been zoned for controlled development. Park management personnel will continue to meet with state and county officials to encourage the enforcement of zoning regulations.

III. THOSE ACTIONS WHICH WILL INITIATE NEW MAINTENANCE

1. Natural Science Project # 5 - VEGETATIVE COVER AND EFFECTS OF GRAZING: As soon as lands are developed for public use, protective fencing will be constructed along the area boundary to eliminate stock from visitor use areas of the park.

2. Natural Science Project # 6 - REPAIR CONSTRUCTION SCARS: The park and regional office will assure that all construction specifications will include the removal of all rubble resulting from activities, replacement of the soil mantle that is lost, and reseeding with native vegetation.

3. Natural Science Project # 7 - SUSTAINMENT OF FISH POPULATION: Extreme fluctuations of Amistad Reservoir due to flood control and irrigation activities, as well as heavy fishing pressure on game fishes, may pose a hazard to their protection. The park will initiate new discussions with the Texas Parks and Wildlife Department to undertake a joint funded project to investigate these problems.

4. Natural Science Project # 8 - WATER POLLUTION: There is high water pollution potential in Amistad Lake due to the great human activities, such as fuel dispensing and storage. Permanent pump-out stations will be developed at pertinent sites, but until installation, temporary disposal barges will be installed at developed sites and at strategic locations on the lake.

IV. THOSE ACTIONS WHICH ENTAIL RESEARCH

1. Natural Science Project # 1 - COMPLETE NATURAL RESOURCES BASIC INVENTORY: This project calls for an inventory of natural resources that have not yet been studied. This action is necessary for wise planning in the recreation area. The study entails inventories and lists of plants, vertebrates and invertebrates, significant geologic features, soils and hydrological features.

2. Natural Science Project # 2 - SOIL STRUCTURE: No soil analysis has been done within the park, and this study will include chemical composition, erosion potential, and related geological features, and will be coordinated with soil and water analysis.

3. Natural Science Project # 3 - WATER RESOURCE ANALYSIS: This study will initiate a water quality analysis within the reservoir and establish benchmarks for monitoring of the watersheds. It is necessary for area resources and visitor protection.

4. Natural Science Project # 4 - BASIC CLIMATOLOGICAL DATA: Some basic weather data is being gathered by the park at present, but this project will expand the data-gathering and provide for considerable analysis of the area's weather for use in visitor safety and eventual ecosystem analysis.

5. Natural Science Project # 5 - VEGETATIVE COVER AND EFFECTS OF GRAZING: Studies will be initiated to determine vegetative composition and productivity, succession, biomass, nutrient needs and other ecological parameters, and to establish benchmarks for long-range monitoring of the ecosystem. These studies will supplement maintenance actions underway.

6. Natural Science Project # 7 - SUSTAINMENT OF FISH POPULATION: Joint studies with the Texas Parks and Wildlife Department will be initiated to determine the effects of fluctuating water levels on spawning fish and other factors of fish tolerance, e.g., temperature changes, light changes, turbidity, etc.

7. Natural Science Project # 8 - WATER POLLUTION: This study will examine localized areas of potential pollution. Benchmarks will be established for long-range monitoring of water quality and control.

8. Natural Science Project # 10 - VISITOR USE ANALYSIS: Increasing visitor use of the recreation area requires the park to obtain data on visitor use activities and to develop monitoring programs to protect the environment.

9. Natural Science Project # 11 - ECOSYSTEM ANALYSIS: This is an all-inclusive analysis of all phases of the area's natural resources. This project cannot be completed until considerable more data is accumulated. Essentially, an ecosystem analysis involves the measurement of the primary energy flow into the system and energy flow of that system.

DETERMINATION: It is determined that all actions above are maintenance and research in character and do not significantly effect the environment or cause controversy. Therefore, in accordance to the following paragraph of "Guidelines for the Preparation and Review of Environmental Assessments and Statements" (National Park Service, July 29, 1974, p. 6),

> "Based on an overview of all actions affecting the environment, the Responsible Official may determine that many plans, projects, and operational decisions have negligible potential to cause controversial or significant environmental impact and therefore do not require preparation of environmental assessments."

No Environmental Assessment will be prepared.

Recommended by Roland H. Wauer
Chief Scientist, Southwest Region

Concurred in by: L. Norman Hap
ACTING Associate Regional Director, Professional Services

Approved by: J. J. Carpenter
acting Regional Director, Southwest Region

VII. APPENDICES

APPENDIX A

CONSTRAINT DOCUMENTS

These documents are available at either the Regional Office or the Recreation Area Office.

APPENDIX B

COMPLETED RESEARCH

RESEARCH

NATURAL SCIENCE*

1. USGS Geological Survey

2. Soil Conservation Reports, USDA-SCS, Del Rio Office

3. Soils and Soil Structure. Ector Series. (found in A.R.A.) 1971. Established Series Rev. ERB:ALN. USDA, Ft. Worth, National Cooperative Soil Survey.

4. Vegetative Cover and Effects of Grazing. SCS Reports, Del Rio Office.

5. Texas Water Quality Board and Texas Parks and Wildlife tests on water quality. (on-going)

6. Investigative Report on Goodenough Springs (on-going). El Paso Office of International boundary and Water Commission.

7. Climatological testing by U.S. Weather Bureau and International Boundary and Water Commission.

8. Paleo Climatic Study. Vaughn M. Bryant, Jr. University of Texas. (Doctor's dissertation)

9. Paleo Ecology of Amistad Reservoir Area. University of Texas.

10. Inventory of Invertebrates. Cheatum. S.M.U.

11. Amistad Reservoir Stocking Program. 1966. George G. Henderson, Jr., project leader. Job No. 7, Region I-D Fisheries Studies. Federal Aid Project No. F-18-R-1. Texas Parks and Wildlife Department.

12. Basic Survey and Inventory of Species in Amistad Reservoir. 1971. George G. Henderson, Jr., project leader. Job No. 1, Region I-D Fisheries Studies. Federal Aid Project F-18-R-6. Texas Parks and Wildlife Department.

13. Reptiles and Amphibians of Amistad Recreation Area Checklist. G. Roun.

14. Breeding Birds of Val Verde County Checklist. Frances Williams. Midland, Texas.

15. Winter Birds of Val Verde County Checklist. Frances Williams. Midland, Texas.

16. Birds of Amistad Recreation Area Checklist (sightings only).

17. Mammals of Val Verde County Checklist.

18. Ecological Reconnaissance of the Pecos River and Rough Canyon Sites on the Lake Amistad NRA. Dr. James G. Teer and Co., College Station, Texas for Ecological Audits Inc., Dallas, Texas. 1973.

19. Environmental Impact Statement. NPS. Diablo East Area, Cow Creek.

ARCHEOLOGICAL

See Archeological Assessment Amistad Recreation Area. Bruce Anderson. National Park Service. Southwest Region. 1974. Includes bibliography and previous research.

HISTORICAL

See Historical Management Plan in Appendix D for bibliography and previous research.

*The Amistad Recreation Area is located just south of both the Stockton and Edwards Plateaus and lies at the critical juncture of three biotic provinces: the Tamaulipan, Chihuahuan and Balconian.

The flora and fauna of each of these biotic provinces is present within the very limited area of the National Park Service jurisdiction along the edges of the lake. Many different agencies, both state and federal, have published lengthy reports on these three biotic provinces, but no specific research has been done within the 1144.3 foot area.

APPENDIX C

COLLECTIONS AND LOCATIONS

None in Natural Sciences.

APPENDIX D

SPECIFIC MANAGEMENT PLANS

LONG-RANGE AQUATIC RESOURCES MANAGEMENT PLAN

AMISTAD - 1967-1976

Recommended: Coleman C. Newman — Superintendent — 6/19/67 — Date

Concurred: Leo A. Williams — ACTING Regional Director — 6/21/67 — Date

Approved: _____ — Director — _____ — Date

TABLE OF CONTENTS

	Page
Introduction	1
Original Condition	1
History of Commercial Fishing	1
Past and Current Management Activities	1
Projected Trends in Resource Perpetuation	2
Specific Management Objectives	2
Classification of Park Water	3
Fish Species	3
Cooperation with National Park Service and Bureau of Sport Fisheries and Wildlife, and the International Boundary & Water Commission	4
Future Management Activities	4
Needs for Additional Information about Aquatic Resources and Angler-use Activities to be received through Investigation	5
Means and Methods of Taking Fish	5
Law Enforcement	5

APPENDICES

Dingell-Johnson Program	Appendix A
Species of Fish	Appendix B
Map of Recreation Area	Appendix C
History of Stocking and Projected Stocking Plan	Appendix D

Introduction

The Amistad Reservoir, near Del Rio, Texas, is situated in a zone that receives influences from the Edwards Plateau, the Chihuahuan Desert, and the Coastal Plain. These three ecological types seem to merge in this general area. The six mile long earth and concrete dam impounds the waters of the Rio Grande which is an international stream. The primary tributaries on the American side are the Devils and Pecos rivers. There are a number of small streams in Mexico that will contribute water to this international reservoir.

There are two existing hydroelectric dams on the Devils River and both will be inundated when the reservoir forms.

Original Condition

Of the three rivers on the American side whose waters will be impounded, the Devils River and the Rio Grande have significant fishery resources. Sport fishing for large mouth bass has supported fishing camps along the shores of the Devils River for many years. The taking of white bass is important seasonally. The Rio Grande, at this point, provides recreational fishing, principally for catfish.

History of Commercial Fishing

There is no history of commercial fishing in this area.

Past and Current Management Activities

Past fishery management activities on Lake Walk and Devils Lake consisted of spot creel checks, gill netting and seining. Based on this

method of sampling supplemental stocking recommendations were formulated. More recent census techniques employed are those of spot sampling using rotenone, snorkel observation and shoal area observation.

Projected trends in Resource Perpetuation

A special effort will be directed toward developing a satisfactory sport fishery at Amistad. This feature of the recreation area program seems possible to achieve. The question of having a commercial fishery is not entirely out of line but careful consideration of the need and its effect on other programs must be given. A period of two years has been tentatively recommended before consideration will be given to a commercial operation.

In the planning stage is idea of mapping the lake, deep spots, reefs, shoal areas to find concentrations of fish. If populations are fairly constant the areas will be marked with buoys and species of fish most likely to be caught painted on the buoys or marked on a fisheries brochure type map of Amistad.

See Appendix A for proposed stocking of Amistad under Dingell-Johnson programs.

Specific Management Objectives

Since the land areas to be inundated are of a very rocky nature, there are no plans for constructing of fish shelter reefs. At some future date perhaps structures of this type might be considered. These reefs have worked well in shoal water areas.

Much of the shore line will be such that fishing from the bank and nearby headlands will be a popular method of fishing. The value of piers to improve fishing is yet to be determined. Float type anchorages for small fishing boats are both desirable and practical.

There is the knotty problem of the private land adjoining the reservoir. Rights of way have been purchased into the main development areas which are government owned. Additional roads are contemplated especially in the upper reaches of the reservoir but careful planning based on surveys of desirable places will be done. Cooperative agreements with land owners on access roads is another avenue to pursue.

Classification of Park Water

Until the reservoir fills and a pattern for visitor-use can be established, zoning of the lake by topographic map would not be realistic. It is recognized that high speed boating, water skiing, and fishing will not satisfactorily mix. Any agreement to close certain areas for safety's sake or specific useage, will be discussed by the area's superintendent in meeting with representatives of the Texas Parks and Wildlife Department.

Fish Species

As final fishery management plans were completed, thought was given to the prospect of controlling rough fish. After due consideration the idea was abandoned in favor of massive stocking of sport fish

to provide a favorable balance between the sport and rough fish populations. At a future date perhaps an exotic predator-sport fish such as great northern pike might be introduced if the conditions are satisfactory.

There is the possibility that the tailwater below the dam might be cold enough to stock cold water species of fish such as trout.

Future stocking plans will receive guidance from the chemical sampling method of inlets and by use of gill nets.

Cooperation with National Park Service and the Bureau of Sport Fisheries and Wildlife

Whenever the need arises plans on the development of fishing and recreational programs will be discussed in a meeting with the agencies involved. The Bureau of Sport Fisheries and Wildlife will of necessity review all plans submitted for qualification under Dingell-Johnson Federal Aid projects. Aid in the form of manpower or equipment could be supplied by the member federal agency requested.

Future Management Activities

The long term management of the area is to ultimately establish the highest possible recreational use of the Amistad Reservoir. Fishing will probably be the number one form of recreation and every effort will be extended by the Texas Parks and Wildlife Department to enhance this sport. A hatchery program to produce predator sport fish will

be considered as well as greatly expanding the stocking of native sport fish. Biological controls of rough fish employing larger predaceous species will be given high priority.

See Appendix B for a list of native fishes.

Needs for Additional Information about Aquatic Resources and Angler-use Activities to be received through investigation.

A resident fisheries biologist employed by the Texas Parks and Wildlife Department will conduct studies on food fish, habitat zooplankton and vegetative composition of Amistad. Based on his findings, plans will be formulated to find the optimum populations of sport fisheries and the balance between them and the predator and rough fish.

Means and Methods of Taking Fish

Regulations prescribed by the Texas Parks and Wildlife Department shall govern the taking of Fish in Amistad Recreation Area. In this regard, the National Park Service will have authority to designate zones where and establish periods when, no fishing will be permitted for reasons of public safety, administration of other public use and enjoyment of the area. Regulations so prescribed would be issued after consultation with the Texas Parks and Wildlife Department.

Law Enforcement

Enforcement of fish laws will be primary duty of Texas Parks and Wildlife Department. The National Park Service will exercise as active a part as practical in conjunction with other duties.

HISTORY OF THE AREA

The area included in present Val Verde County where Amistad Recreation Area is located, was well known to the early Spanish. Cabeza de Vaca, probably crossed Devils River in the county in 1535. In October, 1590, Gaspar Castano de Sosa followed the Pecos through the county on his way to New Mexico. Jose Berroteran crossed the Rio Grande into Val Verde County and traversed fifty or sixty miles of the area in the neighborhood of Langtry, Osman, and Shumal in 1729. In 1736,Captain Miguel de la Garza Falcon crossed at present Del Rio and pushed on to Las Tenajas near Shumla and on to a spring, Hongos del Castro, near present Langtry, and in 1767, the Marquis de Rubi used the familiar Rio Grande crossing at Del Rio as he started on his tour of inspection across Texas.

According to Mexican tradition, a priest undertook a mission on the banks of San Felipe Creek in 1808, but the mission failed. The second attempt at settlement, made by James Grant and John Charles Beales in 1834, also failed because of drought and Indian attacks. In 1848, the first recorded surveys were made in Val Verde County, then a part of Bexar Land District. In 1849, the United States Government opened a military road westward from San Antonio through the county, and passenger and mail service by stage was inaugurated over the route in 1857, when the United States established Camp Hudson on San Pedro Creek and Camp Del Rio near San Felipe Spring. By 1868, a small colony was established at San Felipe Springs and in 1876, a stock company planted a settlement on San Felipe Creek. By 1878, irrigation canals, some of which were in use in 1947, carried water from San Felipe Springs to the valley below. The Southern Pacific Railroad completed the survey of its present line through the county in 1881.

The chief historical interest at Amistad concerns early railroad construction. The most important sites lie just outside the present boundary. From 1881 to 1883, the Southern Pacific Railroad crews worked to bridge the Pecos River with what would be the last few miles of track to be laid in completing its route from New Orleans to Los Angeles. To the area on either side of the junction of the Pecos and Rio Grande, the company brought a variety of construction and engineering talent, numbering possibly as many as ten thousand men at the height of construction activity. Although many of these workers lived in the small camps scattered along the American side of the Rio Grande, the heaviest concentration of living facilities were the large camps located on the plateaus above both of the tunnels which the railroad company built.

The most significant historical sites, Southern Pacific Tunnel #2 and the site of the Vinegaroon construction camp, are adjacent to one another, much of the remains of the camp being situated on top of the high bluff above the river and directly over the tunnel. These sites are located along the Rio Grande about 3.5 miles upstream from the mouth of the Pecos, and scattered remnants of this campsite are found almost as far east of the river as U.S. Highway 90. About twelve structures with at least partially standing walls are located approximately over the tunnel while other walls or foundations are found just upriver. As part of the West of Pecos Railroad Camps District, the camp has been placed on the National Register. Next to the campsite are found the tunnel and adjacent railroad bed, including massive revetments, bridge abutments, and cuts and fills. These engineering works run immediately along the side of the reservoir as the roadbed

emerges above the water's surface perhaps a half mile northwest and upstream from the confluence. Then, as the roadbed runs further upstream toward the northwest, it ascends toward the plateau above the bluffs. Where it crosses the several tributary canyons there are the remains of bridge abutments. The abutments in the canyon adjacent to Tunnel#2 are very imposing massive limestone masonry structures. At this point the roadbed is perhaps 150 feet above the reservoir. Across one of the tributary canyons just east of the tunnel (further research can determine exactly which canyon, although indications are that it was the canyon situated about 2-3/8 miles from the east mouth of the tunnel) was built the bridge where, on January 12, 1883, the final spike was driven to complete the Southern Pacific's route west, part of the second transcontinental railroad and the first southern route to the west coast. Immediately west of the tunnel the railroad goes through perhaps the deepest cuts in the entire area and then reaches the plateau above the Rio Grande and continues westward well above the river's level.

Thus in the vicinity of Tunnel#2 is found a series of sites having considerable interpretive potential: the tunnel itself, approximately three-tenths of a mile long and 25 feet high; the extensive campsite containing walls, foundations, middens, and traces of many other sites; the completion site of the Southern Pacific Railroad; and, huge cuts and fills, massive bridge abutments, and several miles of old railroad bed in most places reveted with limestone boulders as it runs along the steep bluff and rises toward the plateau above the Rio Grande. These are impressive resources of railroad history and engineering, and the social and cultural aspects of railroad camp life, including the mingling of large numbers of Irish, Italians and Chinese.

Southern Pacific Tunnel#1 is located downriver from Tunnel#2, and approximately 3 miles below the confluence of the Pecos. Similar to the location of Vinegaroon, a construction campsite is located on the flat area immediately above Tunnel#1. Less extensive than Vinegaroon, this campsite runs perhaps 500 feet beyond either end of the tunnel and extends about 1,300 feeteast of the bluff.

The site has a variety of partially standing structures, mostly built of dry-laid limestone rock walls. In addition, there are numerous other foundations and tent outlines. These buildings, which served such functions as general stores, animal shelters, forges, and homes, have been studied extensively by Alton Briggs, archeologist with the Texas State Historical Survey Committee; and are the subject of his Master's Thesis, entitled "The Archeology of 1882 Labor Camps on the Southern Pacific Railroad, Val Verde County, Texas," on file at the University of Texas, Austin, Texas.

Whereas Tunnel#2 is about 150 feet above the reservoir's surface, Tunnel#1 is at the water's level. Already partially submerged, Tunnel#1 will be further inundated with any rise in the water level. It has, then, little interpretive value. At the reservoir's highest level, approximately twenty feet above the present level, only the very top of the southern opening of the tunnel will be visible.

One minor historical site is known to exist <u>within</u> the present boundary of Amistad. East of U.S. Highway 90, about two miles north of where the highway crosses the reservoir is located a low structure constructed of earth

and railroad ties. This structure is located along an old abandoned railroad bed, about one mile southeast of where the roadbed crosses Evans Creek. It apparently was used by the railroad builders as a powder magazine or dynamite house. The structure should remain as a discovery site.

PREVIOUS RESEARCH

No historical research projects have been initiated for Amistad. A site survey for the Recreation Area and adjacent lands was conducted on December 3 - 6, 1973, by Richard W. Sellars, Historian, Southwest Regional Office; and, a report of the survey followed on December 20, 1973. Due to the lack of significant sites within the Park, this report primarily concerned the railroad sites adjacent to the Park lands, and the report formed the basis for the above discussion of historical sites.

RECOMMENDATIONS

Project: Background history study.

Action: A Background history study is needed to determine the developments that occurred in and around the present-day Amistad area. This should include an account of the social, cultural, political, and economic activities that help comprise the area's past. The general background study should include a thorough narrative of the railroad history of the area.

BIBLIOGRAPHY

Briggs, Alton. "The Archeology of 1882 Labor Camps on the Southern Pacific Pacific Railroad, Val Verde County, Texas." Unpublished Master's Thesis, University of Texas, Austin, 1973.

Elliot, Claude. "The Building of the Southern Pacific Across Texas," M.A. Thesis. The University of Texas, Austin, 1928.

Parsons, Mark. "Amistad Reservoir Historic Site Survey," Ms. on file at Texas Archeological Salvage Project, Balcones Research Center, University of Texas, Austin.

Perkins, George. "Early History of Val Verde County," no date, no pagination. Unpublished volume, on file at Val Verde County Library, Del Rio, Texas. Mostly a collection of newspaper clippings.

Reed, S.G. "A History of the Texas Railroads," St. Clair Publishing Company, Houston, 1941.

Seale, Mrs. Henry. "A History of Val Verde County," Unpublished, April, 1945.

ARCHEOLOGICAL MANAGEMENT PLAN

An Archeological Assessment for Amistad Recreation Area was prepared by Bruce Anderson of the Division of Archeology, Southwest Region, NPS, in April, 1974. This document includes previous research, list of sites, recommendations and bibliography. As such, it is a documentation of archeological values, not a management plan. It is available in the Southwest Regional Office. A Management Plan for Archeology will be published in the future.

APPENDIX E

ANNUAL REVIEW, CHANGES AND DATES

The Resource Management Plan will be reviewed annually by the Superintendent and the Regional Natural Resources Management Plan Coordinator. Necessary changes will be initiated at the area for approval of the General Superintendent and the Regional Director.